

What is claimed is:

- 1 1. A locking device for maintaining a fixed angular relationship between a driving shaft
2 and a driven shaft, the locking device being adapted to be used in an internal
3 combustion engine, the locking device comprising:
4 a variable camshaft timing phaser having a center mounted spool valve,
5 wherein a null position is hydraulically controlled, the phaser
6 having a plurality of angular relationships;
7 an electro-magnetic locking mechanism; and
8 a locking plate interposed between the phaser and the locking mechanism.
- 1 2. The locking device of claim 1 further comprising a second plate rotably coupled
2 the locking plate during an unlock state.
- 1 3. The locking device of claim 1 further comprising a strap drive interposed
2 between the phaser and the locking plate for biasing the locking device
3 toward the electro-magnetic locking mechanism.
- 1 4. The locking device of claim 1 further comprising a stopping element for
2 preventing the locking plate from direct contact with the electro-magnetic
3 locking mechanism.
- 1 5. The locking device of claim 1, wherein the electro-magnetic locking mechanism
2 comprising a coil.
- 1 6. The locking device of claim 1, wherein the angular relationships include the
2 angular relationship between a cam shaft and the crank shaft, or two cam
3 shafts.
- 1 7. The locking device of claim 1, wherein the driven shaft is a cam shaft.
- 1 8. The locking device of claim 1, wherein the driving shaft is a crank shaft.
- 1 9. The locking device of claim 1, wherein the driving shaft is a cam shaft.